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Concern for coherence in European teacher education is fueled by changes in political organization and teacher mobility. "Coherence" is a value-laden concept, yet its meaning is unclear. In the United States, advocates of coherence assume that a tightly connected set of experiences is needed to give teacher education programs sufficient power. Both "coherence" and "program" have positive associations with harmony and wholeness. The difficulties with "program" and "coherence" in the U.S. context are suggested by the term's historical associations with behaviorism and the pursuit of efficiency. Single-minded planning for particular program effects may crowd out other goals and compromise the idea of educational progress. Rather than adopting the metaphors of force historically associated with program coherence, teacher educators should consider metaphors of light, especially the metaphor of a sparkling diamond. This metaphor implies that education has many facets, which provide light when seen from a variety of perspectives. Teacher education, as this metaphor suggests, can benefit from the incorporation of variegated ideas and practices, among which different patterns of connection may be drawn. Program coherence can be valuable if it helps students build interconnections while also inviting a reweaving of beliefs and ties to what is as yet unknown. (Author)

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PROGRAM COHERENCE IN TEACHER EDUCATION: A VIEW FROM THE UNITED STATES

Margret Buchmann and Robert E. Floden

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Abstract

Concern for coherence in European teacher education is fueled by changes in political organization and teacher mobility. "Coherence" is a value-laden concept, yet its meaning is unclear. In the United States, advocates of coherence assume that a tightly connected set of experiences is needed to give teacher education programs sufficient power. Both "coherence" and "program" have positive associations with harmony and wholeness. The difficulties with "program" and "coherence" in the U.S. context are suggested by the term's historical associations with behaviorism and the pursuit of efficiency. Single-minded planning for particular program effects may crowd out other goals and compromise the idea of educational progress. Rather than adopting the metaphors of force historically associated with program coherence, teacher educators should consider metaphors of light, especially the metaphor of a sparkling diamond. This metaphor implies that education has many facets, which provide light when seen from a variety of perspectives. Teacher education, as this metaphor suggests, can benefit from the incorporation of variegated ideas and practices, among which different patterns of connection may be drawn. Program coherence can be valuable if it helps students build interconnections while also inviting a reweaving of beliefs and ties to what is as yet unknown.

PROGRAM COHERENCE IN TEACHER EDUCATION: A VIEW FROM THE UNITED STATES[1]

Margret Buchmann and Robert E. Floden[2]

Like "equality," coherence is a relative term. We do not know what to make of a call for "coherence" until there is some clarity about what is supposed to "hang together" with what else, in what aspects or interpretations, and to what ends. Coherence is also, like "equality," a concept used with evaluative overtones that are usually positive. What is "coherent" is supposed to have direction, systematic relations, and intelligible meaning, thus conveying a sense of purpose, order, and intellectual as well as practical control.

In Europe, concern for a new coherence in teacher education is fueled by changes in the political and economic environment that open up a larger scope for teacher mobility. The "new" call for coherence in U.S. teacher education is a response to abiding concerns about the effects of education on student learning and equality. These educational concerns are nested in any structural interpretation of coherence that emphasizes issues of compatibility in patterns and credentials. How can teacher learning in universities and schools become interconnected in ways that allow for more worthwhile pupil learning? How can teacher education be reformed so as not to create or widen gulfs in schooling that mirror divisions in society?

In terms of *intellectual* coherence, how can one create a "web of beliefs" composed of subject matter understandings, concepts from the foundations, and the situated, strategic knowledge of teachers? How can different kinds of learning, located in different institutions (university, training college, workplace), and offered by different people (academics, student supervisors, teachers) be made to work together *in practice*? In the United States, the prevailing assumption is that answers may be found in bringing together the concept of coherence with that of "program."

Coherence Through Instructional Programs

In the United States, coherence tends to be taken as that which defines an educational program. A set of courses earns the label "program" only if the set coheres. Both "coherence" and "program" are often used as though their meanings were almost interchangeable,

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[1]This paper will be published in the *Oxford Review of Education*. It was prepared for the 15th annual conference of the Association for Teacher Education in Europe, "Teacher Education in the Nineties: Towards a New Coherence," August 26-31, 1990, Limerick, Ireland. An earlier version under the title "Coherent Programs in Teacher Education: When Are They Educational?" was presented at the annual meeting of the Philosophy of Education Society in Miami on March 31, 1990.

[2]Margret Buchmann, professor of teacher education at Michigan State University, is a senior researcher with the Institute for Research on Teaching. Robert E. Floden, a professor of teacher education and educational psychology at MSU, is an associate director for the National Center for Research on Teacher Education. The authors wish to acknowledge the helpful comments of Jere Brophy, Mary Kennedy, and Lynda Stone; we also thank Jennifer Kubanek and Harold Morgan for their assistance in manuscript preparation.

positive, and clearly shared. An incident at a recent meeting about ongoing research on teacher education highlights these assumptions. A well-known scholar suggested that the assembled investigators abandon their studies of teacher education programs, "because you already know that there aren't any programs." This denial of apparent facts--researchers thought they had already spent hundreds of hours studying a set of programs--provoked puzzlement and counterdenial.

The root of this recommendation to stop research was a tacit interpretation of the term "program," as well as an implicit identification of "program" with good and effective education. The speaker believed that the typical collection of courses teachers take could not be deemed a program and, hence, could not be educationally powerful enough to be worth studying. He spoke as though everyone would not only understand his meaning, but would also share his impression that there is little in teacher preparation qualifying as a "program" and, hence, qualifying for the title "good education."

This paper examines the concept of *coherence* in the context of *program* design. It questions whether the positive connotations of "program" and "coherence" can always be taken for granted.

The Equivocal Attractions of "Program" and "Coherence"

Looking in the *Oxford English Dictionary*, we learn that "program" originally meant only a public notice or printed list. A "program" in this sense refers to planned events without implying that the events bear any special relationships to one another. As the word "program" developed, however, it became linked to a sequence of events, planned so that they all lead toward a definite goal.

In this century, "program" has been used to describe systematic activities, whose orderliness increases efficiency. The Supplement to the *Oxford English Dictionary* lists the following example from a 1941 Bulletin of the American Association of Petroleum Geologists: "Past successes enable us now to look ahead to a difficult but orderly exploration program, rather than a frenzied, inefficient scramble for immediately needed oil." In midcentury, the word "program" came to be associated with Skinnerian behavior training. In this sense, the OED defines an "instructional program" as "a series of step-by-step questions or tests aimed at the establishment of learning patterns through the stimulus of rewarding correct responses or behavior at each step." (Actually, Skinner himself is the author of one of the quotes cited in the OED.) At about the same time, "program" started to be used to describe a college course of study. Interestingly, the relevant OED quote refers to *teacher education*.

The concept of "program" has historical and ideological associations with behaviorism and the pursuit of efficiency, both downplaying deeper questions of aims and not hospitable to intellectual and moral ideals, or to much doubting. This makes instructional programs

suspect on educational grounds. From this point of view, program coherence brings to mind attempts at social and educational engineering that raise ethical questions about the premeditated, unilateral change of other people. Related images of action, ordered progress, and well-meaning authority highlight the conceptual baggage carried by the call for coherence in its association with programs.

Part of the attraction of "coherent programs" derives from the positive value tacitly assigned to "coherence." "Coherence" denotes connectedness which, in turn, suggests consistency and accord among elements. In current U.S. discussions of teacher education, "coherence" is typically treated as a characteristic of major importance, or even as the primary indicator of curriculum worth (see Howey and Zimpher, 1989). Lanier (1986) concludes that teacher education is typically "fragmented" and argues that a "new challenge is a need to provide curricula that are . . . coherent" (pp. 555-556). The highly publicized Holmes Group Report expresses similar worries about incoherence: "Basically a 'nonprogram' at present, professional studies are rarely interrelated or coherent. . . . Students . . . wander about rather than progressing systematically . . . through their programs" (Sedlak, 1987, p. 11). The concern with fragmentation also characterizes an earlier reform proposal: "We propose substantial changes in what we perceive to be a fragmented, often meaningless curriculum for prospective teachers. Our goal is to promote a united sequence of experiences" (Joyce and Clift, 1984, p. 9).

The call for coherence in U.S. teacher education may spring from a fear that formal preparation leaves few traces. Scholars of all persuasions conclude that teachers go through their preparation relatively untouched, relying instead on common sense and their experience of schooling (see, e.g., Buchmann, 1987, and Lortie, 1975). Pitted against these prior teacher learnings, a fragmented curriculum is likely to have little or no effect (see Barnes, 1987).

From its descriptive interpretation as "connection" to its value-laden interpretations as "harmony" and "wholeness," the attractions of coherence derive from what it seems to promote as well as what it may help one avoid. Enhancing order, continuity, and the compatibility of parts in a pattern, "coherence" would seem to lessen the chance that ideas and experiences decompose into disparate, meaningless bits, their worth and formative power eroded accordingly.

Coherence by Any Other Name

In education, features of program design resembling coherence have been advocated under other names--integration, articulation, organization, and so on. The press for connection among curricular components is epitomized by Tyler's (1949) classic *Basic Principles of Curriculum and Instruction*. Still in print, this work argues that curricular organization should provide continuity, sequence, and integration. Each of these qualities is a form of connectedness.

Continuity means having links between one course in a subject (e.g., American history) and the next course (e.g., world history). Sequence extends the idea of continuity, requiring that curricular links over time--what Tyler calls "vertical" relations--involve a broadening and deepening of what is studied, rather than mere repetition. Integration refers to connections across courses in different subjects--"horizontal" relations. Although none of the recent discussions in teacher education refers to Tyler (or, indeed, to any previous discussions of principles by which curriculum might be organized), the general tenor and assumptions seem the same.

Tyler justifies his basic principles by an argument assuming that important learning happens slowly. Connectedness is needed because haphazard, isolated experiences are unlikely to ensure intended learnings. In line with usages of the term "program" since midcentury, Tyler is concerned with efficient instruction and "maximizing educational impact." Relying on the concept of reinforcement, he equates learning with behavioral change and change in behavior with--incremental--educational change:

> Important changes in human behavior are not produced overnight. No single learning experience has a very profound influence upon the learner. . . . In some respects educational experiences produce their effects in the way *water dripping upon a stone wears it away*. . . . In order for educational experiences to produce a *cumulative effect*, they must be so organized as to reinforce each other. Organization is thus seen as an important problem in curriculum development because it greatly influences the efficiency of instruction and the degree to which major educational changes are brought about in learners. (Tyler, 1949, p. 83; emphasis added)

In this metaphor of force, the learner is seen as passive, except for a "stony" resistance. Note that, in this account of education as being shaped externally, there is no *qualitative* transformation--of the learners or of knowledge. There is little room for interactions between teacher and students, or among students, that make learning a co-production and that may affect the sequence or direction of classroom work, thus allowing the teacher to be a learner. What if the teacher is not progressing in a good direction? Being definite and organized about what we do has no independent value. Nor can "connectedness" alone establish reasonableness in thought and action.

Devising programs is compatible with pursuing many different kinds of aims. It is questionable, though, whether all worthy goals in living and thinking can be pursued in a planned sequence of steps. The concept of program seems to be a response to the confusion and contingency of experience, aiming to increase order and control by providing forethought. Coherence in instructional programs is a *means* to these general ends and toward approaching particular purposes. The concept of program has, however, "fringes" of

meaning that can veil facts about teaching and learning--such as the interactive, oblique, and not always incremental nature of both enterprises.

Metaphors of Force Versus Metaphors of Light

Most people can tell stories about single experiences with sudden, profound effects: an event, image, or conversation that makes one see things "in a different light." Of course, not all learning is like a conversion. Yet neither do all important changes require a battery of instructional units. Where learning *is* incremental, on the other hand, it often unfolds in a wayward fashion with delays, regressions, and leaps of the imagination.

Suppose we suspend a belief in education as a form of regulated progress. For purposes of contrast and relief, let us try to substitute the imagery of force by an imagery of light. One can view education as a diamond with many facets that, being held or turned over in life and reflection, shines with a brilliant but broken and tremulous light or glows with a steady white fire from within. The metaphor is, of course, misleading in some aspects; for instance, education and knowledge are not physical matters that can be held externally.

Still, the image of the multifaceted diamond--shining, precious, durable--provides food for thought. Its associations with wonder and delight provide links to educative experience. Learning is not just passive but fired by an interplay of human powers, which are active in wanting, doing, and often in enjoyment. The metaphor is not incompatible with coherence and planning. Lustrous diamonds are cut precisely, with a sense of the whole and its possible effects, as well as the contributions of the parts to the whole. But the cutting results in many angles; moreover, it brings out and enhances *inherent* powers to shine (i.e., refractive power).

The lively sparks depend on how the diamond's many planes are angled *against* each other, but also on how this supreme jewel is held, whether the owner lets it get dulled with grime or puts it away in a drawer, thus never allowing the diamond to emit bright, fitful flashes of light. What one can make of a diamond--in fashioning and responding to it--depends on developing skills and sensibilities, although boundary conditions are set by the object at hand.

The "steady white fire" may be the inspiration one has come to feel for a line of work. In teaching, this may be due to a teacher encountered during one's life who, by having a vision of teaching that influences his life and soul, moves one to raise one's sights to knowledge and children. The fire may also be the love one has learned to feel for one's subjects, joined to a sense that, as Aquinas said, it is *better* to illumine than merely to shine. Such educational changes need not be incremental or behavioral. Also, while encounters with inspiring people can be arranged, responsive vibrations of future teachers' imaginations cannot be planned.

In teaching and learning to teach, moral, practical, and theoretical imagination depends on a meditative culture that supports felt concerns and wonder at the many different sides and surprising interrelations of things. Inadvertently, some people calling for coherent programs may come to treat learners as objects that will be gradually shaped to one mold or equipped with one-sided views. Are related assumptions fitting for our *moral* relations to students and appropriate on *epistemological* grounds, that is, in view of the limits and uncertainties of knowledge about the disciplines, education, and teacher learning? How can we avoid--in reaction against coerced submission and tendentious limitation--falling into the trap of incoherence as dissipation of ideas and efforts?

Finding Helpful Interpretations of Program Coherence

The call for program coherence leaves most of the difficult questions open. What is to "cohere" with what--and to what purpose? One may agree that teacher educators need to put their ideas into some working order but question whether a tightly coherent program will promote educational ends by educational means. The ostensible choice between a "coherent" (good) program and a "fragmented" (useless) set of experiences, moreover, begs the question of whether or not a curriculum should deliver only a small body of closely related knowledge and skill. The same comparison might be cast as a choice between being brought to adopt a party line and being challenged to make sense of a range of ideas and realities. This alternative description also begs the question of desirability, but reverses implied valuations--together with conceptions of the ends of teacher education.

Whether program coherence is a good thing depends on how this characteristic is construed, especially the extent to which a predetermined set of outcomes guides (or constrains) the curriculum. Most people would agree that a professional sequence should not depend on chance or mere custom. It also seems sensible to argue that when concepts--say, "equal access to knowledge" or "student preconceptions"--are introduced early on, their meanings should not be changed without notice in later courses. The single-minded pursuit of a particular change in belief or behavior may, however, crowd out other defensible aims and compromise the idea of *educational* progress.

In general, it is better to be open-minded than to be overpersuaded. Varying degrees of consistency and constraint--from sticking to a common language in dealing with diverse points of view to promoting a single point of view--outline the universe of considerations in discussions of "coherent programs." The relative merits of different points along this continuum depend, in large part, on whether a program is meant to provide technical training or a kind of liberal learning. If teachers are to learn some definite knowledge, skills, and dispositions seen as critical for a specific approach to teaching, it is advantageous to be most concerned about a program's power to get students to acquire those things; if teachers are to get flashes of insight whose meaning and practical significance continue to

unfold, then a program's effectiveness in moving students in a definite direction is less important.

Many objections have been raised against views of teacher education as technical training. Especially germane here are arguments that teachers do not spend enough time in their initial preparation to master all aspects of defensible approaches to teaching. Hence, teacher education should be treated as the beginning of a learning process: It must allow novices to explore a range of ideas and practices under guidance, rather than to acquire the limited set of knowledge and skills they can master in the available time.

One must also question whether future teachers are best served by having all connections laid out for them. Again, this may be feasible and appropriate for some kinds of technical training. But if people are to learn how to solve everyday teaching problems, they need practice in figuring out how different elements in a situation that calls for action--even those appearing to be disjointed--can be considered jointly and made to work together. Consider, for instance, the fact that, although the teacher is a person, she has to take on a *role*, promoting discipline *and* interest, while feeling loyalty for concrete persons *and* administering impartial justice in her class.

Practical wisdom depends on bringing to bear many different concerns on a situation. While it is true that students who know a little bit about a lot of things don't understand anything, those who are trained to act on one perspective may not even know that they have one. The risk in the first case is that future teachers will fall back upon personal preference, common sense, and experience. Yet in the second case the danger is that they will stick to a party line which--derived from current fads and quasi-scientific dogma--may not even have the saving grace of common sense and personal meaning.

Tying Up Loose Ends

Advocates of program coherence rightly point to the dangers of a scattershot curriculum. But mute adherence to "programs" will bring in more regimentation than is needed to rise above randomness. The call for program coherence may be an expression of the quest for certainty, joined to shortsighted views of teacher learning. Teacher education that ties up all loose ends and interlaces all its parts will provide a misleading sense of order and security.

Awareness of uncertainties and contradictions may be uncomfortable, yet denial feeds illusions of competence and understanding. Teaching has endemic uncertainties, which can be managed or appreciated but never eliminated (see, e.g., Floden and Clark, 1988). Teachers or educational scholars may be able to construct coherent pictures of some part of classroom life, but dilemmas and tensions crisscross each picture. Because teaching is uncertain and no educational theory is complete, the unexpected will happen. Even the

most coherent account will fail to explain some important events--and many of our theories turn out to be false anyway.

A program that is too coherent fits students with blinders, deceives them, and encourages complacency. In teaching, the comforts of settled opinion are neither realistic nor functional. Is there a way to make the metaphor of the multifaceted diamond compatible with the curricular depth needed to support reasonable actions and flexible understandings? Returning to a metaphor mentioned in the introduction helps sort out this central question.

Weaving and Reweaving Beliefs

Program coherence could be perceived as a guiding principle for teacher education by imagining an unfinished web of beliefs novices should possess at the end of their preparation. That approach depends on loose ends *and* on coherence. Threads hang together, but there are fuzzy bits and new strands of experience and meaning, with outworn or odd patches being worked over or unravelled over time.

This metaphor clarifies which points on the continuum of consistency and constraint are desirable for teacher preparation and future learning. Recall that a woven fabric may be strong and matted or filmy and insubstantial. A program that briefly exposes students to a large number of disparate ideas and practices may hardly touch them; it runs the danger of leading to a web with so few connections among its nodes that learners cannot make connections themselves and that many parts of the web will escape attention. A program aiming to tie up all loose ends will be tightly structured; it may lead to a sturdy web that is densely entwined, yet with such a smooth boundary and filled-in texture that it admits few opportunities for making connections to new ideas or events that are unexpected.

Being well-poised between the extremes is not coming down plump in the middle but depends on teacher education goals, instructors, students, and circumstances. While teaching and teaching teachers are enterprises committed in conceptual and practical terms, teacher education can hardly be more certain than teaching itself. Desirable program coherence is found where students can build connections among various areas of knowledge and skill, but where loose ends remain, inviting a reweaving of beliefs and ties to the unknown.

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